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IN TWO SECTIONS

Section I

IN THIS ISSUE

A Simple Hand-Posted Voucher Register System, by Edward W. Hartman..... 589

A Case Problem in Lumber Costs, by Edward S. Rittler..... 598

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EDITORIAL DEPARTMENT NOTE

The two articles in this issue of the *Bulletin* are of the case-study type. The first might be described as a "How-we-do-it" or methods case study, since it deals with the application of accounting technique to a specific situation, but a situation which is duplicated in many companies without regard to industry classification. The procedure for handling vouchers payable will be of interest to all of our members. The second article is an industry case study, in which the application of accounting principles and practices in a specific industry is illustrated through application to the requirements of a case company in that industry. Some of our members will find Mr. Rittler's article applies to their specific industry, but all will find it interesting as an example of the application of accounting methods to an important industry.

Edward W. Hartman, the author of our first article, was graduated from Valparaiso University where he majored in accounting and economics. His early accounting and business experience was gained in his position of Cost Accountant with The Capehart, Inc., of Fort Wayne. Upon the acquisition of this company by Farnsworth Television & Radio Corp., Mr. Hartman joined the latter company where he now has charge of the accounts payable division and the preparation of monthly statements.

The author of our second article, Edward S. Rittler, has been engaged in public accounting practice since 1918 and is at present a partner in the firm of Moses, Rittler & Dienes, of New Orleans. A C.P.A. of Louisiana and Mississippi, Mr. Rittler is a member of the Council of the American Institute of Accountants, and a member of the Institute of Chartered Accountants of Manitoba, the Society of Louisiana Certified Public Accountants of which he is a Past President, and N. A. C. A. Mr. Rittler is at present acting as Supervising Auditor of the Eighth Naval District.

Articles published in the *Bulletin* present many different viewpoints. In publishing them the Association is not sponsoring the views expressed, but is endeavoring to provide for its members material which will be helpful and stimulating. Constructive comments are welcomed and will be published in the Forum Section of the *Bulletin*.

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JANUARY 1, 1942

A SIMPLE HAND-POSTED VOUCHER REGISTER SYSTEM

By Edward W. Hartman, Accountant,
Farnsworth Television & Radio Corp., Fort Wayne, Ind.

SINCE the voucher register is the journal in which the material invoices, the expense vouchers and other payable items are entered, it is important that the system used should adequately and economically take care of the volume and needs of the business.

Posting machines have definite advantages, which I will not discuss here, but they have one disadvantage, especially in a smaller concern, and that is the bottleneck when the volume of invoices during a peak period cannot be handled by the operator. The chief disadvantage of the columnar form of voucher register of the hand-posted type is that, when you have a multiplicity of departments and account numbers, the recapitulating becomes burdensome.

With this in mind, I would like to suggest a simple hand-posted voucher register that has proven a time-saver, is flexible in operation, gives more information regarding the source of expenditures than the usual voucher register, and can accommodate any number of operators working simultaneously.

We will assume here that the invoices have been made ready for entry, that is, the following operations have already taken place:

1. Receiving tickets have been attached.
2. Extensions have been checked.
3. Prices have been verified with the purchase order or the purchasing agent.
4. Variances have been figured and are shown on the invoice.
5. Terms and due dates are shown on the invoice.
6. Account numbers to be charged are shown on the invoice.

A rubber stamp will serve the purpose of centralizing this needed information.

The Form

The form used in this voucher register system is a standard 11¼" x 13¾" double column receipt book with triplicate forms, each of the three sheets, having a different color. The first sheet is green, the second white, and third yellow. It has perforated di-

viders so as to give ten separate tickets to each page as illustrated in Exhibit 1.

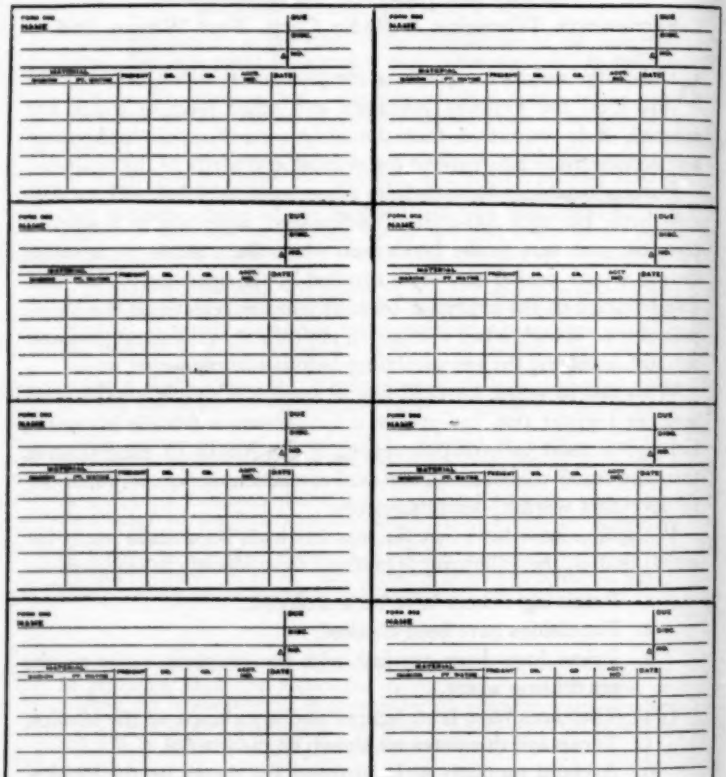

EXHIBIT 1

The form is standard except for the printing and comes three to a set with about twenty sets to a book, bound on the left edge with rubber cement binding. Sheet 1 is for the accounts payable department and serves as a check request. Sheet 2 is the biff ticket or unit distribution ticket used for distributing the charges. Sheet 3 is the voucher register and is designated as the book of original entry. Sheets 1 and 2 are perforated to facilitate tearing, while sheet 3 is not, this being filed numerically in a binder.

The individual tickets making up this sheet are designated to meet the needs of the business. In the example here illustrated the company has two plants, Fort Wayne and Marion.

Entering the Invoices

The voucher register clerk performs the following operations before entering the inventories:

1. Arranges the invoices by due date alphabetically. This is important because it is quite possible to enter the wrong name on the voucher ticket and it is much easier to trace the error if the invoices are entered in alphabetical order. In our plant all invoices are filed alphabetically.
2. Numbers each invoice. A simple plan is to use as a prefix the month of the year, and allow enough digits to cover a month's run of invoices, until the group ready for entry is numbered. For example: The first invoice for January would be 10001, the second, 10002, the third, 10003, etc.; for December, the first invoice to be entered would be numbered 120001, the second, 120002, etc.

The invoices are now ready for entering.

If there are several invoices from the same vendor, it is desirable to enter as many as you can on a single ticket, using one line for each invoice or account number until all six lines are utilized. *Do not* enter two different vendors on the same ticket or more than one office of a vendor that has different treasury offices, such as the General Electric Company, or invoices having different terms or due dates.

Exhibit 2 illustrates the method of recording an invoice from a supplier of production material. The first two columns are used for recording Marion and Fort Wayne materials at standard cost.

The third column is for freight and the fourth and fifth columns for debits and credits to other accounts. In recording invoices for materials these debit and credit columns are used for purchase variances and no account number is needed. Where the miscellaneous debit or credit is to some account other than a variance account, the account number is recorded in the seventh column. This is illustrated by the debit of $375 to account 1681. The final column on the exhibit is for recording credits to accounts payable. The handling of debit memos, which are the reverse of invoices, is also illustrated in Exhibit 2. The circling of amounts indicates a credit to the account charged and a debit to the vendor, as shown in the entries for $19.10 and $27.50.

Exhibit 3 illustrates the entry of an invoice for expenses involving charges to several departments. If twice as many departments were involved, the two material columns would be used, one for account numbers and the other for amounts. By writing two entries to a line, twice as many entries can be made.

It is advisable to keep groups for entering to about 250 to 350 vouchers as the checking in is much simpler than when larger groups are entered.

After the group is entered, the invoices and the first copies (green) go to the accounts payable department, the second copies

FORM 802

NAME O. K. Machine Company

DUE 1/10

DISC. 2 %

△ NO. 123425-30

MATERIAL MARION	MATERIAL FT. WAYNE	FREIGHT	DR.	CR.	ACCT. NO.	DATE	
						Dec.	
	140.25					16	140.25
	175.00			12.50		17	162.50
	(19.10)			1.90		17	(21.00)
476.50		2.00	23.50			18	502.00
(27.50)						20	(27.50)
			375.00		1681	30	375.00

EXHIBIT 2

(white) stay with the voucher clerk, and the third copies (yellow) are placed in a binder for permanent records.

Checking and Verifying

The accounts payable department, upon receiving the invoices and the first copies (green) from the voucher clerk, will (1) run an adding machine tape of the amount of the invoices; (2) after separating the voucher register tickets by due dates, run a separate tape of each; and (3) add the sums of the due date tapes. The column to the right of the unit ticket is the voucher payable column and this is the only column considered in this operation. Very little checking is necessary to make these two tapes agree.

All of the information for paying these invoices is on the tickets; hence they serve as check requests. The invoices are turned over to the file clerk who files them alphabetically. The check request tickets are also filed alphabetically by due dates. Control of this file is maintained by a columnar work sheet (Exhibit 4) showing the balance in the voucher payable account by the respective due dates.

Paying From Voucher Payable Tickets

We find the following procedure satisfactory and foolproof in paying from voucher payable tickets:

FORM 502

NAME Home Telephone Company

DUE 1/15

DISC. Net

NO. 123401

MATERIAL MARION	MATERIAL FT. WAYNE	FREIGHT	DR.	CR.	ACCT. NO.	DATE	
			40.20		7244	Dec. 31	475.00
			60.30		7444		
			150.68		7544		
			4.20		7944		
			207.55		8044		
			12.09		8844		

EXHIBIT 3

1. The tickets are sorted by vendors.
2. The checks are addressed and dated, (3 copy Speediset, Exhibit 5), using addressing machine, if available.
3. The checks are run through a wide-carriage adding machine having a date column attachment. All that need be shown on the check is the invoice date and amount. After all the tickets for the one vendor have been run on adding machines, sub-totals are taken, discount allowable is determined, and net amount of the check is shown. The same procedure is followed for all checks, keeping voucher payable tickets and checks together. With a numbering machine, the check number is stamped on the voucher payable ticket. This cancels the voucher register ticket, and means "paid in full." At the same time this is done, a check is made to see that the vendor's name and address agrees with the name and the address on the check.

Proving the Checks

The next step is to run a tape for each of the following:

1. Voucher payable tickets

CONTROL SHEET
VOUCHER PAYABLES TICKET

Description	Accounts Payable Balance	Due 1/10	Due 1/15	Due 1/25	Due 2/10
Br't. Fw'd. 120001	10,000	5,000	2,000	2,000	1,000
120250	16,000	8,000	2,500	4,000	1,500
Paid 1/10	7,900	(100)	2,500	4,000	1,500
Transfer Cr. Bal.	7,900		2,400	4,000	1,500
120251					
120600	13,900		4,400	7,000	2,500
Paid 1/15	9,500			7,000	2,500

EXHIBIT 4

2. Net amount of checks
3. Discount.

The sum of tapes 2 and 3 must agree with the total of tape 1 and with the total due on that due date. (Exhibit 4)

Next the checks are "protected" and a tape is run of the "protection." This tape must agree with the tape 2, the net amounts of the checks. This tape is sent along with the checks to the signing officers.

Tapes 1, 2, and 3 are filed as working papers, with pay date and numerical sequence of checks paid noted on each tape.

One copy of check is filed in the invoice file, and another is filed in numerical sequence. The "paid" voucher payable tickets are filed numerically by check numbers in a 3" x 5" file.

Proving the Accounts Payable

To prove the open payables at the end of the month, it is merely

Check No. 119364

O. K. Machine Company,
2400 East Wayne Street,
Fort Wayne, Indiana.

January 10, 1942

First National Bank

DEC 16		51.33	DEC 21		7.31	DEC 27		79.80	DEC 14		140.25
DEC 16		23.21	DEC 22	2	84.00	DEC 27		86.43	DEC 17		162.50
DEC 17		671.34	DEC 23		23.00	DEC 27	2	32.00	DEC 17		21.00-
DEC 16		67.21	DEC 23		98.20	DEC 27		45.00	DEC 18		502.00
DEC 17		232.12	DEC 22		2.10	DEC 26	1	21.00	DEC 20		27.50-
DEC 17		200.00	DEC 16		44.32	DEC 29	2	37.00	DEC 30		375.00
DEC 18		23.50	DEC 23		66.71	DEC 24		66.43		7,5	88.22
DEC 18	1,0	20.12	DEC 23		44.21	DEC 28		33.32			75.88-
DEC 17		23.89	DEC 23	3	67.00	DEC 28	5	46.00		7,5	12.34
DEC 19	2	33.68	DEC 24		45.00	DEC 29		9.40			
DEC 20		23.76	DEC 24		23.50-	DEC 29		23.21			
DEC 21	2	31.78	DEC 24	2	32.00	DEC 30		40.37			
DEC 20		2.31	DEC 26		34.31	DEC 30		37.99			
DEC 22	5	21.00	DEC 26		5.51	DEC 30		30.00			
DEC 21		4.67	DEC 26		67.13	DEC 30		25.00-			
			DEC 26	2	32.00	DEC 29		34.80			

EXHIBIT 5

necessary to run a tape on 8½" x 11" sheets, showing voucher number and amount, the voucher number being put in by utilizing the "non-add" key. Inasmuch as no invoices entered after the first of the month could have been paid in the previous month, we simply show the total of all such invoices at the end of the sheet.

It is advisable to prove the voucher payable file after each major pay date or periodically, whichever is most convenient.

The Biff Ticket or Unit Distribution Ticket

So far we have dealt with only copy 1, the accounts payable or credit side of the voucher register ticket. Copy 2 is used in recording the debit. The compiling of these charges is handled by the voucher register clerk.

The voucher register clerk "checks in" the same group of entries as was checked in by the accounts payable department, sorting according to account numbers.

Control Sheet of the Charges

The control sheet (Exhibit 6) is a summarized distributing sheet proving that all the debits are accounted for. Inasmuch as material purchases constitute a large portion of the invoices entered, we will show those in detail rather than in a group.

CONTROL SHEET
VOUCHER REGISTER DISTRIBUTION TICKET

Voucher Number	Total	4510 Std.	4510 Var.	4510 Prt.	4520 Std.	4520 Var.	4520 Prt.
120001-250	6,000	3,000	300	10	1,200	25	15
190851-900	6,000	4,200	(400)	(14)	800	30	10

Job 4540 Ord.	4551 Stg.	Advertise	1000 to 2900	Marion 6100	Ft. Wayne 6210	7000 to 7900	8000 to 8300
1,000	50		200	100	50		50
200	20	150	360	250	175	104	175

EXHIBIT 6

In sorting these tickets, we find, as in Exhibit 3, that a ticket may have several separate charges which must be segregated. Here we use the old "biff ticket" idea and, having separate tickets run for this purpose, transfer these charges on the additional tickets, scratching each charge as we make out a transfer ticket. Using

Exhibit 2 as an example, we need only make out one additional ticket for "account 1681, $375.00."

This is done with each group until the voucher register is closed. Thus a journal entry is made debiting the detailed accounts and credited accounts payable for the total, which is the same amount turned over to the accounts payable for the month.

The Book of Original Entry, Copy 3

We have now discussed the use of copy 1 in the accounts payable department and have shown how the distribution of the debits is obtained from copy 2. Copy 3 is the voucher register itself and is bound and filed. However it is very seldom referred to since the other two copies give all the information and control that is needed. Since the auditors have to work from this book of original entry, it is important to note on it any changes made on the other two copies.

Daily Checks

Every business has daily checks for freight bills, expense reports, advances, etc., which need to be handled separately from the regular invoices. For these we have a separate payables account that balances out each day. For example, if our account number for regular accounts payable is 2010, we call this second account number 2011.

Each day we enter on this voucher register these current payables, using a different series of numbers; instead of starting with 10001, we start with 19001.

The accounts payable department debits daily accounts payable (2011) with the checks written and the voucher register clerk credits daily accounts payable (2011) when making the distribution. This group is distributed at the end of the month by the voucher register clerk together with other payables. No daily distribution is made. However it can be done daily if necessary for expense control. This current accounts payable record must prove daily to see that we have not confused the entries with the regular accounts payable register.

Limits

Just what is the volume limit for this method is hard to say.

We have run seven thousand invoices a month without any confusion. If our business volume should double tomorrow, we could hire two extra clerks, one as a voucher clerk and the other for the accounts payable department, and would not need to worry about buying another posting machine (if we could get it) or working two shifts on the present posting machine.

A CASE PROBLEM IN LUMBER COSTS

By Edward S. Rittler, Partner,
Moses, Rittler & Dienes, New Orleans, La.

THE lumber industry is one of the country's major industries and much information concerning procedure for determining costs of its various operations and products may be found in works on lumber accounting and in trade association papers and publications. It is not the purpose of this talk to restate these procedures nor to advance new theories for determining costs in the industry, but rather to state an actual cost problem and resolve it according to accepted methods and theories.

Lumbering operations in this country are carried on under a variety of conditions. This is particularly true of the operations having to do with bringing the tree from the stump to the mill. In sections where the land is dry, main-line railroads are constructed from which spur lines are run into the body of the timber, and the logs, when felled, are loaded onto cars and transported to the mill by rail. In swampy areas where it would be impossible to build and operate a railroad, pull-boats are used to skid the logs from the point where they are cut to a canal or waterway where they are rafted together and towed to the mill. It is with this latter method of logging that our problem has to deal.

With these introductory remarks, we will proceed with the statement of the problem and its discussion.

The Problem

The Texla Lumber Company acquired some 10,000 acres of timber lands which were estimated to contain 40,000,000 feet of tupelo timber and 10,000,000 feet of cypress timber. The prices paid for the land and timber were as follows:

Land	$ 1.00 per acre
Tupelo Timber	2.00 per thousand feet
Cypress Timber	10.00 per thousand feet

Immediately upon acquisition, the Company proceeded to acquire logging equipment and construct a saw mill. It then entered into

a contract with the Apex Company to sell to that company the entire output of tupelo lumber at a price of $23.00 per thousand feet, mill run, that is, all grades. The lumber was to be considered delivered to the Apex Company when it was placed on the property of that company. For this purpose, the Texla Lumber Company leased to the Apex Company a portion of its own yard adjacent to the mill. Periodically, about every ten days, a representative of the Apex Company was to inspect and tally the lumber placed on the yard, and on receipt of his report and tally, the Apex Company was to remit to the Texla Company at the rate of $22 for each thousand feet of lumber which had been delivered since the last inspection and tally, withholding $1 per thousand feet until the lumber was actually shipped.

As the cypress timber was interspersed with the tupelo timber, both species had to be logged at the same time. They also had to be cut in the mill and stacked on the yard at the same time. The particular feature of this problem, then, is the cost determination of joint products of a saw mill.

The operations of the Texla Lumber Company for the year 1940 are set out in the statements numbered 1 to 8, inclusive. Statement 9 is a balance sheet at December 31, 1940.

Logging Operation

The logging operation naturally is the first of the operations necessary to produce lumber and have it ready for shipment. All of the expenses necessary to getting the logs out of the woods to the mill are listed in Statement 1 at the end of this article. The total of these expenses represents the cost of both tupelo and cypress logs delivered to the mill, exclusive of the stumpage, that is, the log itself. Were the stumpage or the cost of the logs charged in at this point, an average cost of all logs would result. It is here, then, that the first allocation of expense to the two species of lumber is made. This is done on the basis of the number of feet of tupelo and cypress logs delivered to the mill.

Saw Mill Operation

The mill saws the cypress logs in the same manner as the tupelo logs. It may be supposed that a certain amount of time is spent sawing cypress logs exclusively and that this time may be separated

from the time spent in sawing tupelo logs. Such, however, is not the case. If it were, there probably would be some basis for allocation of the saw mill expense according to labor hours, or to operating time. One log is exactly like another as it goes through the mill, and it is only when the lumber is loaded on to dollies that the segregation as to species is made. The most reasonable allocation of the saw mill expense is on the basis of the number of feet cut by the mill. Allocation on this basis is made in Statement 2, "Saw Mill Expense," according to the mill tally of the lumber cut.

Yard Operations

The hauling of the lumber to the yard and the stacking thereon are considered part of the cost of the lumber. As in the case of the saw mill expense, it would be impracticable to attempt to separate the yard expense according to the two species, and the allocation is made from the mill tally of lumber sent to the yard. A statement of the yard expenses and their allocation is given in Statement 3.

General and Administrative Expenses

For purposes of determining the cost of the lumber of both species, the expenses have been grouped according to logging, milling and yarding. A fourth group of expenses, general and administrative, do not affect the cost, but reduce the gross profit from the sales. Some authorities advocate the allocation of a certain percentage of these expenses to the three operating divisions on an arbitrary basis on the theory that some portion of these expenses constitute true manufacturing overhead. Although there is considerable merit in the contention, the danger in this procedure lies in having a part of these expenses accumulate in the inventory, so that in a period of declining volume and high manufacturing costs, the inventory may rise to such a value as to make a profit in the succeeding period impossible. A list of the general and administrative expenses is given in Statement 4.

Determining Cost of Lumber

Cost of manufacture in the lumber industry usually means an average cost for all species and grades. While the depletion charge

for the timber removed may be made at the price for each particular species, the total of all depletion charges is carried to the logging account so that the logs that are delivered to the mill bear the same average cost per thousand feet for one species as for another. Of course, it is possible, by adding to the average logging cost the stumpage, or cost of the log itself, for a particular species to secure a more accurate cost for that species. This practice, however, is not widespread, but it has been employed here, as the problem discussed is not a usual one in the lumber industry, and the separation of the species in this case is more easily accomplished than in the usual one.

The cost of tupelo and cypress lumber manufactured is computed in Statements 5 and 7, respectively. The first element of the cost is logging, which is brought from Statement 1, Cost of Logging. The next element is stumpage, or the cost of the log itself. This cost is $2 per thousand feet for tupelo and $10 per thousand feet for cypress. The third element is the severance tax which is due when the timber is severed from the stump. The addition of these three elements gives the total cost of the logs skidded by the pullboats during the year. This cost is then adjusted for the beginning and ending inventories of logs, the result being the cost of the logs sawed by the mill.

Up to this point, the quantities have been expressed in feet, according to the log scale measurements. Timber is bought and sold on these measurements, which are supposed to represent the number of feet of lumber contained in the logs. However, good timber will over-run these measurements while defective timber will fall below them. As the lumber comes from the saws, it is tallied according to its actual measurements. The log scale measurements are then converted to the lumber measurements by adding the over-run or deducting the under-run. In the case of the tupelo lumber, the over-run amounted to 12 per cent of the log scale measurements, while the cypress lumber over-run amounted to 20 per cent. The resultant average cost becomes the cost of the logs sawed expressed in board feet.

The next two elements of cost are saw mill expense and yard expense allocated in Statements 2 and 3, respectively, according to the number of feet of tupelo and cypress lumber produced. The

total in Statement 5 represents the cost of tupelo lumber manufactured, and in Statement 7, the cost of cypress lumber manufactured.

Determining Gross Profit

The term "Gross Profit" almost always means the margin between the sales and the cost of the product sold. In this case, however, the cost of the product sold includes expenses of shipping and commissions paid on the sale of cypress lumber. The treatment of these items may not be altogether orthodox, but it permits of a clear grasp of the results of producing tupelo lumber under contract, and producing cypress lumber for the open market.

The gross profit on tupelo lumber manufactured for the Apex Company is computed in Statement 6. It will be noted that the income derived from the contract for the year is analyzed to show the amount of lumber placed on the yard during the year, the amount of lumber shipped during the year, the quantity unshipped at the beginning of the year, and the quantity unshipped at the end of the year. The total agrees with the quantity manufactured for the year at the contract price of $23 per thousand feet, but as $22 of this price was advanced when the lumber was tallied by the inspector of the Apex Company and $1 was withheld until shipment, it is valuable to the management to know to what extent the lumber on the yard is accumulating. Under the terms of the contract with the Apex Company, the cut of tupelo lumber may be reduced to a certain minimum quantity per month, or it may be increased to a certain maximum quantity, so that the amount of lumber on the yard at any time is an important factor in the cash budget of the Texla Lumber Company. The statement submitted is for a period of a year, but a similar statement is prepared at the end of each month so that the management may be informed as to the rate at which the lumber is being manufactured, shipped, and held on the yard.

The cost of the tupelo lumber manufactured is transferred from Statement 5 and deducted from the gross contract price, the difference being the margin between the contract price and the actual cost of manufacture.

As the contract price of $23 per thousand feet includes loading into cars, the shipping expenses include not only those expenses that were incurred in actual shipments during the period, but also an estimate of the expenses necessary to load into cars the lumber remaining on the yard. This estimate is based upon the actual rate, per thousand feet, of the cost of loading for the period. The shipping expense is also divided in the statement to show the quantity actually shipped during the period, the quantity on hand at the beginning, and the quantity on hand at the end.

The addition of the shipping expenses to the cost of the lumber manufactured gives the cost of the lumber loaded into cars. Deducting this figure from the production at the contract price gives the gross profit, so-called, on the sales under contract to the Apex Company.

The gross profit on the sales of cypress lumber is computed in Statement 7. There is no particular point to explain with respect to this statement, except to point out that the shipping expenses are in respect of lumber actually shipped. This is so for the reason that there should be a sufficient margin of profit in the inventory to cover shipping expenses, and expenses of a general and administrative nature.

Profit and Loss Statement

The gross profit from the tupelo lumber manufactured for the Apex Company and the gross profit from the sales of cypress lumber are transferred to Statement 8. From the total gross profit are deducted the general and administrative expenses to arrive at the net operating profit.

Other income would include such items as rents, sales of wood or scrap and cash discounts on purchases, while other deductions would comprise interest, cash discounts on sales, and losses from bad debts.

The net income is determined after the provision for income taxes is made.

Balance Sheet

The balance sheet has been incorporated with the statements submitted in order to explain some points that are peculiar to lumber accounting.

The number of logs in the inventory and their feetage are usually based on estimate. It is almost impossible to get an accurate count of the logs, as some which may be submerged in the water and others on the ground before they are skidded may be overlooked. However, the margin of error in the estimates is usually small and does not affect the accuracy of the figures to any extent. The log inventory is generally valued at the average logging cost plus the stumpage price.

The two bases most generally adopted by the lumber industry for valuing lumber on the yard are average cost, and cost or market, whichever is the lower. Average cost may be taken for a period of a year, or for a period of two or three months, depending upon how conditions within the industry influence the costs, and upon the amount of lumber in the inventory. Obviously, an average cost for a short period of two or three months could not reasonably be applied to an inventory which represents a mill's cut for an entire year or longer period.

In valuing an inventory on the cost or market basis, the average cost is compared with the market price for each item. If the average cost is lower than the market price, the average cost is accepted as the price for that item, or if the market price is lower than the average cost, then the market price is taken. The entire inventory may not be computed at average cost and at market, and the lesser of the two totals be used as the value of the inventory.

Of the two methods, the cost or market method is the more conservative. If an inventory is consistently valued on the average cost basis, it will be found that over a period of rising costs due to poor timber or unfavorable logging conditions, the amount at which the inventory is carried may exceed its sales value. This may very easily happen to a cypress inventory where there is such a wide variation in the sales prices of various grades. The lowest grade may sell at $10 per thousand feet while some of the top grades may command as high as $140 per thousand feet. There is naturally more incentive to move the high grades than the low grades, and the inventory will usually be found to consist mostly of the low grades whose selling price is far below the average cost.

Amortization of Saw Mill

The investment in a saw mill is proportioned to the extent of the timber owned, and the general practice of recovering this investment is to amortize it over the life of the cut. This rate of amortization will be constant unless for some reason there is more or less timber available to the mill than originally estimated. The supply of timber may be increased by growth, or by the acquisition of other tracts, or by purchase of logs from independent contractors; or, it may be decreased by fires or storms. Whenever a new estimate of the available supply is made, an adjustment of the rate of amortization is necessary.

In the case under discussion, it was estimated that 50,000,000 feet of timber was available to the mill which cost $50,000 to construct. Assuming that the scrap value of the mill at the end of the operation was 10 per cent or $5,000, then the rate of amortization would be 90 cents per thousand feet, log scale, which is $45,000 divided by 50,000,000 feet.

Under this plan of recovering the investment, all replacements or major repairs to the mill would be charged to operations, and only those items which added new utility would be capitalized.

Accrued Shipping Expenses

The amount of expense to be incurred in loading and shipping the lumber of the Apex Company on the yard at December 31, 1940 has been estimated at the average rate per thousand feet for lumber actually shipped during the year and has been set up as an accrued liability on the balance sheet. This is proper on the theory that all costs whether actually incurred or to be incurred should fall as a charge against the income to which these costs relate. Since the amount withheld by the Apex Company until the lumber is shipped, namely, $1 per thousand feet, is shown in the balance sheet as an account due from that company, the expense which will be entailed before this withheld amount is realized should be included with the other liabilities that have to be paid.

It is hoped that the discussion of this problem has been interesting and that you have secured some idea as to how costs are determined in the lumber industry.

STATEMENT 1

COST OF LOGGING

TEXLA LUMBER COMPANY

Year ended December 31, 1940

	Feet	*Amount*	*Cost Per Thousand Feet*
Deadening	8,800,000	$ 1,232.00	.14
Road Cutting	.....	2,464.00	.28
Sniping and Boring	.....	2,992.00	.34
Falling Timber	.....	15,312.00	1.74
Pulling	.....	13,376.00	1.52
Floating	.....	8,976.00	1.02
Rafting	.....	4,664.00	.53
Towing	.....	5,720.00	.65
Logging Sinkers	.....	3,168.00	.36
Chain Dogs	.....	1,848.00	.21
Fuel Oil	.....	2,288.00	.26
Oils and Greases	.....	440.00	.05
Dynamite	.....	2,728.00	.31
Wire Rope	.....	1,320.00	.15
Dredge Boat Expense	.....	4,224.00	.48
Gas Boat Expense	.....	4,840.00	.55
Maintenance and Repairs	.....	2,464.00	.28
Insurance—Compensation	.....	4,400.00	.50
Insurance—Other	.....	2,200.00	.25
Taxes	.....	2,640.00	.30
Depreciation on Logging Equipment	.....	4,400.00	.50
Auto Expense	.....	1,320.00	.15
General Salaries	.....	3,696.00	.42
General Labor	.....	1,320.00	.15
General Expense	.....	440.00	.05
Total	8,800,000	$98,472.00	11.19
Allocated:			
Tupelo	7,200,000	$80,568.00	11.19
Cypress	1,600,000	17,904.00	11.19
Total	8,800,000	$98,472.00	11.19

STATEMENT 2

SAW MILL EXPENSE

TEXLA LUMBER COMPANY

Year ended December 31, 1940

	Feet	*Amount*	*Cost Per Thousand Feet*
Labor	9,800,000	$24,757.43	2.53
Oils and Greases	.....	2,274.00	.23
Saws	.....	960.00	.10
Belting	.....	98.00	.01
Supplies	.....	2,940.00	.30
Maintenance and Repairs	.....	4,018.00	.41
Insurance—Compensation	.....	1,764.00	.18
Insurance—Other	.....	2,744.00	.28
Taxes	.....	1,568.00	.16
Watchman	.....	1,274.00	.13
Amortization of Saw Mill	.....	7,778.57	.79
General Labor	.....	490.00	.05
General Expense	.....	196.00	.02
Total	9,800,000	$50,862.00	5.19
Allocated:			
Tupelo	8,000,000	$41,520.00	5.19
Cypress	1,800,000	9,342.00	5.19
Total	9,800,000	$50,862.00	5.19

STATEMENT 3

YARD EXPENSE

TEXLA LUMBER COMPANY

Year ended December 31, 1940

	Feet	*Amount*	*Cost Per Thousand Feet*
Foreman	9,800,000	$ 1,960.00	.20
Green Chain	.....	3,920.00	.40
Trucking	.....	3,430.00	.35
Stacking	.....	7,154.00	.73
Remanufacturing	.....	2,450.00	.25
Insurance—Compensation	.....	2,156.00	.22
Insurance—Other	.....	1,274.00	.13
Taxes	.....	1,187.44	.12
Depreciation on Yard Equipment	.....	500.00	.05
Watchman	.....	1,078.00	.11
General Labor	.....	5,684.00	.58
General Expense	.....	2,646.00	.27
Total	9,800,000	$33,439.44	3.41
Allocated:			
Tupelo	8,000,000	$27,297.50	3.41
Cypress	1,800,000	6,141.94	3.41
Total	9,800,000	$33,439.44	3.41

STATEMENT 4

GENERAL AND ADMINISTRATIVE EXPENSES

TEXLA LUMBER COMPANY

Year ended December 31, 1940

	Feet	*Amount*	*Cost Per Thousand Feet*
Administrative Salaries	10,000,000	$ 8,000.00	.80
Office Salaries	.....	3,100.00	.31
Stationery and Printing	.....	250.00	.03
Postage and Envelopes	.....	150.00	.02
Telephone and Telegraph	.....	400.00	.04
Traveling Expense	.....	300.00	.03
Auto Expense	.....	450.00	.04
Light and Water	.....	120.00	.01
Office Expense	.....	150.00	.01
Legal and Professional	.....	650.00	.07
Exchange	.....	40.00	...
Insurance	.....	1,915.00	.19
Taxes	.....	980.00	.10
Donations	.....	75.00	.01
Depreciation	.....	900.00	.09
Miscellaneous	.....	140.00	.01
Total	10,000,000	$17,620.00	1.76

STATEMENT 5

COST OF TUPELO LUMBER MANUFACTURED FOR THE APEX COMPANY

TEXLA LUMBER COMPANY

Year ended December 31, 1940

	Feet	*Amount*	*Cost Per Thousand Feet*
Cost of Logging	7,200,000	$ 80,568.00	11.19
Stumpage	.....	14,400.00	2.00
Severance Tax	.....	504.00	.07
	7,200,000	$ 95,472.00	13.26
Add Inventory of Logs at Beginning	292,857	3,786.64	12.93
	7,492,857	$ 99,258.64	13.25
Deduct Inventory of Logs at End...	350,000	4,637.50	13.25
Cost of Logs to Mill (Log Scale)....	7,142,857	$ 94,621.14	13.25
Overrun—Fee (12%)	857,143	.....	....
Cost of Logs to Mill (Mill Tally)..	8,000,000	$ 94,621.14	11.83
Saw Mill Expense	8,000,000	41,520.00	5.19
Yard Expense	.....	27,297.50	3.41
Cost of Manufacture	8,000,000	$163,438.64	20.43

STATEMENT 6

GROSS PROFIT ON TUPELO LUMBER MANUFACTURED FOR THE APEX COMPANY

TEXLA LUMBER COMPANY

Year ended December 31, 1940

	Feet	*Amount*	*Cost Per Thousand Feet*
Lumber placed on Yard during Year.	8,000,000	$176,000.00	22.00
Lumber Shipped during Year.....	9,250,000	9,250.00	1.00
Lumber Unshipped at Dec. 31, 1939..	(6,750,000)	(6,750.00)	(1.00)
Lumber Unshipped at Dec. 31, 1940..	5,500,000	5,500.00	1.00
Total	8,000,000	184,000.00	23.00
Cost of Manufacture.....	8,000,000	163,438.64	20.43
Shipping Expense:			
Lumber Shipped during Year.....	9,250,000	7,650.00	.83
Lumber Unshipped at Dec. 31, 1939	(6,750,000)	(4,792.50)	(.71)
Lumber Unshipped at Dec. 31, 1940	5,500,000	4,565.00	.83
Total Shipping Expense.....	8,000,000	7,422.50	.93
Cost of Lumber Loaded in Cars	8,000,000	170,861.14	21.36
Gross Profit	8,000,000	$ 13,138.86	1.64

STATEMENT 7

GROSS PROFIT ON SALES OF CYPRESS LUMBER

TEXLA LUMBER COMPANY

Year ended December 31, 1940

	Feet	*Amount*	*Cost Per Thousand Feet*
Sales of Cypress Lumber	2,000,000	$ 74,683.08	37.34
Cost of Sales:			
Cost of Logging	1,600,000	17,904.00	11.19
Stumpage	.....	16,000.00	10.00
Severance Tax	.....	416.00	.26
	1,600,000	34,320.00	21.45
Add Inventory of Logs at Beginning	150,000	3,168.00	21.12
	1,750,000	37,488.00	21.42
Deduct Inventory of Logs at End	250,000	5,355.00	21.42
Cost of Logs to Mill (Log Scale)	1,500,000	32,133.00	21.42
Overrun—Feet (20%)	300,000	.....	....
Cost of Logs to Mill (Mill Tally)	1,800,000	32,133.00	17.85
Saw Mill Expense	.....	9,342.00	5.19
Yard Expense	.....	6,141.94	3.41
Cost of Manufacture	1,800,000	47,616.94	26.45
Add Inventory of Lumber at Beginning	1,500,000	38,700.00	25.80
	3,300,000	86,316.94	26.16
Deduct Inventory of Lumber at End	1,300,000	32,435.00	24.95
Cost of Sales	2,000,000	53,881.94	26.94
	2,000,000	20,801.14	10.40
Expenses:			
Shipping Expense	2,000,000	1,020.00	.51
Commissions	.....	4,500.00	2.25
Total Expenses	2,000,000	5,520.00	2.76
Gross Profit	2,000,000	$ 15,281.14	7.64

STATEMENT 8

PROFIT AND LOSS STATEMENT

TEXLA LUMBER COMPANY

Year ended December 31, 1940

	Feet	*Amount*	*Cost Per Thousand Feet*
Gross Operating Profit:			
Gross Profit on Tupelo Lumber Manufactured for the Apex Co.	8,000,000	$ 13,138.86	1.64
Gross Profit on Sales of Cypress Lumber	2,000,000	15,281.14	7.64
Total Gross Operating Profit	10,000,000	28,420.00	2.84
General and Administrative Expenses	10,000,000	17,620.00	1.76
Net Operating Profit	10,000,000	10,800.00	1.08
Other income		2,400.00	.24
		13,200.00	1.32
Other Deductions		1,200.00	.12
Net Income before Provision for Income Taxes		12,000.00	1.20
Federal and State Income Taxes		2,138.82	.21
Net Income		$ 9,861.18	.99

STATEMENT 9

BALANCE SHEET

TEXLA LUMBER COMPANY

As at December 31 1940

ASSETS		
Current Assets:		
Cash in Bank and on Hand		$30,000.00
Accounts Receivable:		
The Apex Company	$5,500.00	
Customers	27,000.00	
Miscellaneous	1,000.00	
		33,500.00
Advances to Employees		500.00
Inventories:		
Lumber	32,435.00	
Logs	9,992.50	
Supplies	750.00	
		43,177.50
Total Current Assets		107,177.50
Timber Lands		10,000.00
Standing Timber	180,000.00	
Less Reserve for Depletion	100,000.00	
		80,000.00
Fixed Assets:		
Mill and Yard Site	3,500.00	
Logging Equipment	22,000.00	
Saw Mill	50,000.00	
Yard Equipment	2,500.00	
Automobiles and Trucks	3,000.00	
Furniture and Fixtures	1,500.00	
	82,500.00	
Less Reserve for Depreciation and Amortization	42,500.00	
		40,000.00
Prepaid Expense—Insurance		1,250.00
Total		$238,427.50
LIABILITIES		
Current Liabilities:		
Notes Payable		$35,000.00
Accounts Payable		13,000.00
Federal and State Income Taxes		2,138.82
Accrued Expenses:		
Wages, Interest, and Insurance	$2,250.00	
Shipping Expenses	4,565.00	
		6,815.00
Total Current Liabilities		56,953.82
Capital Stock		150,000.00
Surplus		31,473.68
Total		$238,427.50

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